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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

Observe 1.9 In3Ch

PROGRAM..... Chats by the Weather Man. RELEASE..... Wed. Jan.5

ANNOUNCEMENT: Every season has its music. In Spring there's the gentle song of the whispering rain and the call of nesting birds. Summer comes with the lazy, endless chittering of countless tiny insects. Rustling leaves and the sig of the wind in the sheaves herald Autumn. But great, bold, blustering Winter has his howling blizzards and rattling sleet to make us glad we're safe indoors. A spokesman for the U. S. Weather Bureau is going to tell you more about "Winter's Music" in this short talk tonight. So poke up the fire and gather 'round. The talk is based on articles by Dr. Humphreys and other Weather Bureau officials.

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'Twas the night before New Year's and all through the house not a creature was stirring.....And yet the house seemed alive with mysterious sounds.

Three of us were gathered around the fire. Earlier in the evening the fire had roared and crackled. The great, hungry flames of crimson, orange,gree and blue had leaped up from the wood as though they wanted to go up the chimney and away on the wings of the wind that sang outside.But these dancing flame seemed to symbolize the fresh, eager New Year.

We were so quiet we could hear the fire softly talk to us.

PTH.....PTH.....PTH, said the fire.

"The fire is treading snow", said my granfather. "It means we'll have more snow tomorrow".

I had heard this quaint, old saying before and resolved to ask our friend, a weather man, who sat on my right, about it.

"What makes the fire talk?" I asked.

"I have often wondered that myself", he replied. "And I suppose countless other watchers by the fire in all ages have asked the same question. You only hear the fire talking when the wood is well burned down and there's a bed of glowing coals deep down in the grate. I suppose these faint sounds are the tiny explosions of combustible gases that come up from hot bits of wood and charcoal buried deep in the embers. When they hear these faint, PTH,PTHS, some folks say, 'the fire is spitting snow'. Folks who have sat by a thousand dying winter fires say the sound means that it's going to snow the next day."

"It does mean that", said grandfather. "Wait until tomorrow----and see".

"Perhaps you think the popping of the fire is a sign of snow because folks usually build big fires on the dark, dank nights before snow storms come," said the weather man.

Then we grew quiet again. The night was magic, peaceful indoors. But outside a great storm was brewing. How the wind howled about the eaves! Roared up in great sweeps ---then died away, whispering and whining.

Then softly on the window panes there came a faint tick --ticking, as though some one had thrown grains of rice against the glass. This was followed by another and another --faster and faster. A continuous rattle. Then it died down as it had come.

"It's hailing", said I.

"Not hail," said grandfather, "sleet".

"He is right", our weather friend told us. "Sleet comes like that when the temperature is only a degree or so below freezing -- and a storm is gathering It's good to have a shelter over your head when the sleet ticks at the window pane".

"What is sleet?" I asked.

"It's really winter's hail", replied the weather man. "There are three kinds of hail, you know. Each kind occurs at a different season and is formed in a different way. The hail that occurs in winter consists of small, clear pellets of ice. These little pellets are about the size of large raindrops--- they <u>are</u> raindrops, in fact -- frozen raindrops. Soft hail consists of small, white pellets of what looks like compacted snow. It usually comes in small quantities, generally in March and April, but occasionally in Autumn. The only time hail occurs in summer is during a thunderstorm. These hailstones are usually large. Some have been known that were several inches through.....They often do great damage."

"I remember when I was a boy", began grandfather. We leaned forward to catch his story. "That was long ago", he continued, "and we used to have some hard winters in those days. I'll never forget that Winter we moved from the Storm River country! The river was frozen over and we drove our sleighs right across it from Christmas until the last of February. I remember the snow drifted so high that it came up to the eaves in the back of our house and we couldn't look out the back window. One day a neighbor of mine, who lived down the creek about 5miles, came to visit us. He drove up and hollered for me to come out. I went to the door and I could see my breath freeze in the air. 'Please shut the door', my wife called. 'We'll all freeze to death'. So I shut the door. Then Jim called out, 'Hey, there, Hyrum --- Where's the gate?' 'You come right in', I called out. 'Fence was covered with snow long ago.' So he drove over the gate, on the snow crust. How the wheels of the wagons, and the runners of the sleighs did sing on the frozen roads! We don' have winters like those these days. I reckon you folks of this century have forgotten what it is to bundle up and go for an old-fashioned sleigh ride.

You go for auto rides instead. I remember we'd always cut the corners fast. 'Cutting a shine', we called it. It was fun because it threw everybody into everybody elses arms. But those days are gone forever", and grandfather stopped talking and looked into the glowing fire.

"Well, grandfather," said the weather man, "The chances are that winters today are about what the old ones were. The records show that our snows are not decreasing each year, as our years increase. The main reason why we don't get good sleighing these days is probably because the increased use of automobiles makes it undesired. When we look back on the old days, things always seem different. These memories of ours, are the mental pictures, carried along through the years, and perhaps distored. We remember the unusually hard winters. Extremes stay in our minds. We forget the average. Look back on the place where you spent your child-hood days. If you go back there now and look things over you'll probably find that the old house is not more than half as large as we imagined it to be. The barn is much smaller. That old hill where we coasted when we were children, is much shorter and less steep than we remember it. The river is a mere creek and the bridge over it -- which we considered one of the greatest structures in the world -- is found to be small, and roughly built. Thus we account for the erroneous statements about the weather in the past. These statements of the old days are not made from records -- and they are not made with the intention of misrepresenting the facts."

Again we sat lost in silence and thought. We looked straight into the dying fire on the hearth.

The wind whistled and whined -- then died. It was cold. Every now and then crackling sounds -- booms -- and small, mysterious rustles -- came to our ears.

"Many a night I've lain awake in this old house and listened to the joists and rafters crack just like they're cracking tonight", grandfather told us. "If you're worried, these sounds will keep you awake and make you nervous. If you're content, the sounds are a lullaby. Winter's lullaby".

"It's the cold that does it", said the weather man. "The joists contract As they fit into new positions, they crack and boom. Ghostly, fearful sounds, sometimes."

"Is this what causes trees to burst in cold weather?" I asked.

"Partly", said the weather man. "When you hear those 'pistol shots' out in the woods in cold weather, they're probably not pistols shots at all. Those sounds are caused by the outer shells of trees splitting under the great strain caused by the shell's cooling faster -- and shrinking faster -- then the inner wood. You don't hear this very often".

"But when you do hear it, you know it", said grand-dad.

Soon, lulled by winter's music -- the soft, kind, ghostly song of the seasons, --- grandfather fell asleep by the fire.

Good night, to you all.....

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ANNOUNCEMENT: This concludes tonight's Weather Chat released by Uncle Sam through Station_____.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

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Reserve 1.9 A13C7h

PROGRAM.....Chats by the Weatherman..... RELEASE.....Wed. Oct. 6

SAMPLE (not for release)

ANNOUNCEMENT: Starting tonight this station will present regularly, each Wednesday, a "chat with the weatherman". Tonight he gives you some inside information on just how Uncle Sam manages to guess right most of the time.

Tonight I want to introduce you to the Weather Man. You already know him in a way through his forecasts which you read in the papers. You've also seen his weather maps and cards that are posted about town. The weather man is over fifty years old now. His career has been a varied one, but what you want to know most likely is just how forecasts are made.

Every morning and evening at 8 o'clock, eastern time, work speeds up at 200 weather stations in the United States. Observations are made of wind and weather -- air pressure and temperature -- clouds -- humidity -- and rainfall during the preceding 12 hours. The 200 stations promptly telegraph this data to a District Center where it is sent to all Weather Bureau stations where forecasts are issued.

As a sample, I will give you a typical code message for a morning observation in the Springtime at Davenport, Iowa. It reads: DAVENPORT TENOR BENAUL BANDIT KICKOFF WESTERN CENSOR. When translated, that code message tells the Weather Man at each of the Weather Bureau Offices receiving it that the weather at Davenport is cloudy, the wind is blowing from the north at a velocity of 12 miles an hour; the temperature is 68 degrees Fahrenheit; the barometer reading, reduced to sea level, is 29.94 inches; the barometer is falling rapidly; the sky is covered with altostratus clouds, which are moving from the northwest; the lowest temperature last night was 52 degrees Fahrenheit; the rainfall during the night amounted to .26 of an inch, and it fell during the middle of the night in connection with a thunderstorm.

Trained men take the telegrams as fast as they come in and chart the information on outline maps of the United States. By the time the last message is received the forecaster has a complete picture of the weather over the entire country. Reports are received also from the territories and from several foreign countries. With these data and with maps made beforehand, the forecaster can trace the movements of storms -- cold or hot waves -- and fair weather areas as they move across the country.

On a bright, sunny morning, just why is the Weather Man led to say: "Increasing cloudiness and warmer tonight; Friday, unsettled with probably rain"? Why not? He has before him every day a picture of the weather in all parts of the United States. These pictures show where the barometer is lowest -- or in other words where the air is lightest, (often because of the presence of a large amount of water vapor.) As you may know, water, when in the vapor form, is a gas -- only a little more than half as heavy as dry air. Where the barometer is highest, or where there is a small amount of water vapor present, there is not much likelihood of rain.

Easy, isn't it? Maps also show where the barometer is falling rapidly, or where moisture is being carried in by the winds; where the barometer is rising rapidly; where it is raining or snowing; where the sun is shining; where it is getting colder, and where it is warming up; where the wind is blowing strong, and from which direction it is blowing; where the skies are clouded, and the kinds of clouds which prevail. In fact, from his pictures he can tell you what the weather is in New York or San Francisco almost as well as he can in his home town.

Having then a picture of today's weather, on a base-map of the United States, the Weather Man can determine how far he is from the center of the fair or foul-weather area -- calculate its probable rate of movement eastward, observe the kind of weather which its presence caused in other places during the last 12 and 24 hours, and thus foretell, with a fair degree of accuracy, what the weather is going to be in his vicinity during the next 24 to 48 hours.

Radio, by the way, plays an important part in the gathering of this weather information from foreign countries and from ships at sea.

Definite frost warnings and temperature forecasts are made from 24 to 48 hours ahead of the drop. They are widely spread by radio, telegraph, telephone, mail, and flag signals. Farmers, the fruit growers, transportation companies, and stock raisers make practical use of the forecasts.

Next week we'll tell you of some interesting discoveries the Weather Bureau has made about the air and the weather.

ANNOUNCEMENT: Weather men in all parts of the country have many amusing and entertaining experiences which will be told in this series of "chats with the weather man" which will be heard through this station each Wednesday through the courtesy of the U. S. Department of Agriculture.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM..... CHATS BY THE WEATHERMAN ..... RELEASE..... Wed. Oct. 29.

ANNOUNCEMENT: Again tonight we have with us--the Weather Man. The Weather Man's chat, a regular Wednesday feature from this station, comes to us from the U. S. Department of Agriculture. Let's see what he has to say this week.

Some time ago a dainty, timid little voice said over the telephone, "Will you please tell me what the weather will be on the seventeenth day of June?"

We thought quickly and inquired gently, "What is it, a wedding?"

"Yes, why-a-a-who told you?"

"Oh, a little bird whispered it to us, so we are prepared to promise you the most glorious of all June days on the seventeenth."

"Oh, thank you so much. Goodbye."

She was gone. We looked at the calendar. It was just one hundred and seventeen days until June 17,--and we salved our conscience with the reflection that although no one is able to correctly forecast the weather on a given day so far in advance that dear little girl will have at least one hundred and sixteen days of pleasurable anticipation.

Riley, the poet-philospher, wrote, "When it rains, why rain's my choice." Remember then, thereis no weather that is altogether bad and devoice of some beneficent results. There are so many different kinds of good weather that folks who can't find some weather they like will, doubtless, never be satisfied here, or in the hereafter.

With climate we can do nothing except to adapt ourselves and our production to what we find it to be. But there's one thing sure, so far as human activity is concerned--Seed time and Harvest shall never fail. The weather may be fickle. It is the perfectly harmonious result of natural laws. Nothis more certain than the weather, and it will pursue its lawbound course to the end, in spite of the puny effort of Man to exercise control over it.

No, the climate isn't changing. That is, not so that it is noticeable or measurable, for more than 50 years of carefully and accurately kept records and the evidences of history for many centuries.

I wonder how you would like to do a little forecasting? Let me give you some suggestions that will help you read the weather signs.

The first local sign of an approaching storm is usually a steady fall in the barometer and rising temperature. Then the appearance of high Cirrus cloudsin the western sky. The wind increases in velocity, becoming east or southeast, The barometer falls more rapidly. Clouds thicken and change to lower form, while at the same time the temperature rises and the humidity indreases. Then there is a period of rain or snow with the barometer still falling until it reaches the lowest point.

The beginning of a rise in the barometer is often the first sign that the storm center has passed. About the same time the wind shifts, the temperature begins to fall and the rain ceases. Then the canopy of thick clouds break, showing patches of clear sky. Presently the weather has cleared. In summer, the cooler weather following, marks the termination of a period of hot, sultry weather.

The chances are that whenever we enjoy a fine, clear, cold weather we are under the influence of an area of high pressure. In the winter time "highs" are associated with clear, cold weather, the clear skies favor the radiation of heat from the ground during the long, cold nights and this is intensified if the ground is covered with snow. During the summer "high" are often accompanied by drought and high temperature, until an approaching "low" causes renewed circulation of the air. In an area of high barometer the air is colder than the surroundings,-is heavier, and consequently, settles slowly toward the earth's surface.

Storms so far described may not be dangerous in any way and in most instances they are not. Occasionally they cause gales on the lakes and Atlantic Coast and may cause some damage to shipping. As a rule such storms merely produce the ordinary changes from clear to cloudy and rainy, and back to pleasant weather, such as occur every few days.

There are, however, two classes of distubances in which nature presents to us her severest moods. You've heard of both of them many times,-- Hurricanes and Tornadoes. Hurricanes originate in the tropics. At first they move westward in the prevailing easterly winds called the trades. Gradually they curve to the northeast and then follow the usual pathof all low areas. They usually are only a hundred miles or so in diameter and sometimes much less, but being developed over smooth water surfaces, where there is less hindrance to the winds than over land areas, they develop unusal energy. Most of these storms occur during the late summer and early fall.

The Tornado is a very small storm, sometimes only a hundred yards in diameter, and rarely as much as a mile. It is characterized by the presence of a funnel-shaped cloud touching the earth. Nothing except the most substantial structures can withstand the power of a tornado in which the wind, it is estimated, sometimes reaches the tremendous velocity of 400 hundred miles an hour. Fortunately, they are not frequent. The great majority of them occur in the spring of the year and the area affected by any one of them is very small.

But let's not get started on those unpleasant subjects.

Perhaps you won't believe it--that is if you are an almanac reader-- but, nevertheless, the forecasts you read in such publications for months or years in advance are pure guess work and quite useless.

Neither does the moon regulate the weather anymore than it does the planting of potatoes or the weaning of calves and babies.

Weather has no concern about our holidays. It doesn't rain oftener on the Fourth of July than on the second or the seventh. It only seems so--because we remember the Fourth and we are patriotic Americans, while the other days have no special significance. Easter weather is not any different from the other days in the period in which it occurs.

Robins and other birds and animals are no better weather prophets than the goosebone or the groundhog, but like farmers and sailors they know from experience certain local signs which presage storm conditions a few hours in advance and they are all fooled sometimes.

ANNOUNCEMENT: This concludes the Weather Man's Chat. You will hear from him again at this time next Wednesday. If you have any special questions to ask the Weather Man, direct them to this station and they will be forwarded to the U. S. Department of Agriculture, under whose auspices this program is given.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

Reserve 1.9 A13C2

PROGRAM.....Chats by the Weather Man..... RELEASE.....Wed., Nov. 3

ANNOUNCEMENT: The Chats by the Weather Man, one of our regular Wednesday features from the U. S. Department of Agriculture, gives us, this week, a "Worms eye" view of the weather extremes over the United States. Again we introduce the Weather Man.

* * * *

'Phone rings.

"Hello. Am this the weather brewery?"

"Yes; this is the Weather Bureau office."

"Well, this am Mis' Brown -- Mis' Sapphrony Brown. Is it a gain' to turn cold? My neuralgia has been awful bad and I thought it might get better if the weather would change."

"We are predicting fair and colder weather, with temperature down to 20 degrees above zero," I assured her.

We had a busy morning in the office that day. Next came a call from the Railroad Company's general manager's office. The railroad didn't want a report for medical purposes, however. Railroads can't get neuralgia very well.

From the poorest washerwoman to the biggest commercial house in the city, calls came in all morning. The same reply was given to them all.

Then a note of alarm crept in.

A wild rumor of an approaching cold wave swept over the city. We were swamped with 'phone calls. Rumor had it the temperature would fall to 20 degrees BELOW zero -- a full 40 degrees colder than the minimum named in our forecast. Some people said this report had come from our office. Others said it came out of the air by radio. Still others declared it had come by wire.

The people were panicky. They recently had had a bad financial scare. There had been one severe cold wave, and now they were afraid of another -- a vastly colder one.

Well, what was I to do?

Whole town was against me. Railroads, newspapers, schools, construction companies, public utilities -- every body and everything had taken fright.

I got cold feet myself -- but kept a cool head and stood by my guns at 20 degrees ABOVE zero. If the mercury went down -- I would go down with it.

BUT THE COLD WAVE NEVER CAME. And I was saved.

Often people ask us about the weather in other parts of the United States. We Americans are a restless people -- always moving about -- always looking for the mythical pot of gold at the end of some brighter rainbow. Naturally, we want to know what the weather's like at the end of the rainbow. So we ask the Weather Man about it.

You can find about any kind of weather you want in the United States.

For instance, California. This state can boast that it contains, almost side by side, one of the hottest spots on earth: DEATH VALLEY, and among the pleasantest year-'round climate: the southern coast region. The heaviest snowfalls are found in the high Sierra mountains. The least rainfall is in the Death Valley region.

The coldest spot in the United States -- outside of Alaska -- is not in California, but in the eastern part of Montana. Near Miles City the temperature fell one day in January, 1888, to 65 degrees BELOW ZERO.

And the hottest -- the Greenland Ranch in Death Valley. One day there the temperature registered the sizzling high mark of 134 degrees ABOVE ZERO. This is the highest temperature ever officially noted on a Weather Bureau instrument.

If the temperature should rise to that point in humid, or moist, portions of the country, the population would be nearly wiped out. In a dry region the cooling of the body, due to evaporation from the skin, helps to offset the effect of the high temperature. You've all heard the old saying, "It isn't the heat; it's the humidity." At Greenland Ranch it seems to be the heat.

The wettest region in the United States in on the Olympic Mountains in the state of Washington. At Clearwater, on the western slope of those mountains, in Jefferson county, there is an AVERAGE of 128 inches of rain and melted snow in a single year. No other large section of the United States has as much. Yet, only about 70 miles from Clearwater, in the Port Townsend region, but on the eastern side of the Olympics, the annual amount is but slightly more than 20 inches. The high mountains cut off the supply of moisture from its ocean source. Somewhat further east on the leeward side of the still loftier Cascade Mountains, there are almost desert conditions. In a few sections of that region, the average yearly precipitation is only about 7 inches.

There is no spot on the mainland of the United States that has wholly escaped freezing weather. And yet, Key West, Florida, which is not on the mainland, has always been frostless.

Of the cities that have way-below zero temperature, Duluth, Minneapolis, and St. Paul are the largest.

The driest large cities -- from the standpoint of precipitation, of course -- are San Francisco and Los Angeles. They are practically without rain in July and August. The important city having the least annual range of temperature is San Francisco, California.

California, usually thought of as a land of fruit, sunshine and flowers, has also within its borders the region of greatest snowfall in the United States. This occurs in the Sierra Nevada mountains near Summit, Calif. There the snowfall averages about 35 feet and as much as 65 feet has occurred one winter. However, Paradise Inn, on Mt. Ranier, gives Summit a good race for the snowfall record and is not much behind..

Snowfall in many places varies greatly from year to year, as for instance Walla Walla averages 24 inches per season, but in the winter of the big snow (1915-16) 77 inches fell. During the winter just preceding that one, only 2 inches of snow fell in Walla Walla.

Many people think the climate is changing. They think, for instance, that we don't have as much snow as they did when Grandad was a little shaver. The figures on file don't agree with the old folks' memories. Severe winters stick in their minds. They forget the mild ones. For instance, I myself remember back about 39 years when the snow drifted over the eaves of the chicken house.

A And so it goes. Day after day, the Weather Bureau goes on: -- describing the climate of a certain region for the benefit of home-seekers -- answering 'phone calls from ladies with neuralgia -- giving out information to information seekers, curiosity-seekers, markets, railroads, washerwomen. All use the weather reports with growing trust and confidence.

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ANNOUNCEMENT: You may look forward again to this period next week for another of the series of Weather chats from the U. S. Department of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

PROGRAM Chats by the Weather Man. RELEASE Nov. 10.

ANNOUNCEMENT:--In his last five chats, the Weather Man has told you something about his work -- About the general importance of the weather -- A little about how forecasts are made -- And a few facts about how forecasts are used when made. Tonight the Weather Man is going to cite a few instances of the importance of weather testimony in court actions. This feature comes to you from the U. S. Department of Agriculture through station_____.

* * * *

Were it a clear day, General Putnam was taking big chances when he cautioned his men, crouched atop Bunker Hill, not to fire until they could see the whites of the Redcoats' eyes. While a man with good eyesight can make out a persons' eyes at about 240 feet distance, he can't see the whites of them as a fule at more than 90 feet.

Even if you have keen eyesight, and the visibility is good, you can't ordinarily recognize a person you have seen but once before, at a greater distance than 80 feet. If you know him well, you may be able to recognize him at from 260 to 350 feet. If he is a member of your family, even at about 500 feet.

That may account for so many men being mistaken for game this time of year when hunting is in order.

The slightest movements of the head,arms, or legs, are visible at 300 feet. Larger movements may be seen at 1,000 feet. But, at 1,750 feet, a human being appears only as an indefinite form. And, at 2,300 feet, large body movements cannot be detected.

On a bright moonlit night, the illumination is about one-600,000th part of the light of high moon. But, when clean snow is on the ground, the illumination is considerably more. Snow reflects about 40 per cent of the light it receives. Because of its whiteness, there seems to be more light than there actually is. Even then, a bright moonlit night in winter is never "as light as day."

This question of the degree of light is often mighty important in court actions. Weather records are frequently introduced as evidence in that connection.

For instance, several years ago, a weather man testified before a United States Commissioner, in extradition proceedings, against a man accused of murder. The weather man was asked to testify in regard to the weather and moonlight in a certain city in Russia on such and such a night. The man accused of murder had escaped to this country. Well, the weather records were secured from Russia through the Weather Bureau in Washington. They showed that on the night of the alleged crime, there was bright moonlight and snow on the ground. Therefore, the visibility was very good. This evidence was brought in to determine if there was enough light on that night to permit the accusing witnesses to recognize the murderer. The decision of the Commissioner was against the prisoner.

The Weather Man appears in a great variety of lawsuits. Those involving personal injury, murder, robbery, arson, loss by fire, divorce, delayed construction work, damage to perishable goods -- are some of the more common types.

He may be called in by the plaintiff or the defense to testify as to conditions of sunshine, moonlight, temperature, rainfall or snow fall, wind speed, humidity, wind direction, or any other of the weather factors. The Weather Man may be asked to testify concerning visibility, condition of the ground, the foliage of plants.

Nick Marzen, the butcher, killed a man for his money some years ago. Then he hid the body in a barn. It was winter. The State produced the weather records to show that the temperature during the period was frequently very low -- -- and sufficient to preserve the body from decomposition. Nick Marzen, the butcher, was given a life sentence.

Following testimony, proving that there was sufficient light on the night of the crime for Luetgert to kill his wife and destroy her body in one of his vats, Luetgert was given a life sentence. He died in prison. In murder, arson, or robbery trials, the Weather Man's testimony regarding visibility is often an important factor. He consults his records for the day or night of the crime, and gives his findings to the court. Several years ago, in a robbery case where the verdict hung on testimony regarding the occurrence of a heavy rainfall. A home had been robbed one night during a thunderstorm. One of the family claimed he recognized their chauffeur in the dark, as the burglar. The chauffeur was arrested But at the trial it was brought out that there had been a heavy fall of rain at the time. It was shown that the chauffeur's shoes weren't muddy. His clothing was dry, also. The jury decided that it was a case of mistaken identity.

Several years ago, a man sued the City of Chicago for damage to goods in his basement. He claimed that the street was defective and allowed the water from a heavy rainfall to accumulate until it finally ran down into his basement. Records showed that for more than a week before the date of the alleged damage, there had been no rain or snow, and that the temperature had been far below zero. No water could have fallen on the street. Even if it had, it would have frozen quickly. The judge instructed the jury to give a verdict in favor of the City.

Two cases are recalled where it was charged the wind had carried sparks from a railroad locomotive and set fire to nearby property. In both instances the records showed that the wind -- at the time of the fire -- was blowing directly away <u>from</u> the property and that locomotive sparks couldn't possibly have been responsible. The judges ordered their juries to bring in verdicts in favor of the railroads.

Some years ago, one Captain George Wellington Streeter, laid claim to property on the northside lake front of Chicago. The property is worth more than $5,000,000. Well, the Captain declared that he was shipwrecked in a storm July 10, 1886, and that his boat, the "Reutan," had been tossed up on a sandbar at the foot of Oak Street, Chicago. In time, the watery gap between this island of sand and the mainland filled up with sand. Later, it extended to the north and south. The Captain laid claim to all this land, and named it "District of Lake Michigan." He insisted that it was no part of Illinois, but a separate commonwealth under the

jurisdiction of the United States. According to the weather records produced for that July day in 1886, there was no storm prevailing, but the day was fine with a gentle off-shore westerly wind. The Captain, who died just a few years ago, lost his case.

There is the curious case of the man with a frozen ear. He claimed that the frozen ear led to erysipelas. And, as he had accident insurance -- but no health insurance -- he claimed that the freezing of the ear was an "accident". He produced records to show that the weather was such as to have possibly caused it.

Then there is the man with the cinder in his eye. He said that on a certain day, a west wind blew a large cinder from a certain factory directly into his eye. This finally caused the loss of his sight. It was proved that the wind did actually blow from the west, as the man claimed.

In personal injury suits against street-car or railroad companies, all kinds of questions are asked about the weather. The attorneys may want to show that rain was falling -- or had fallen a short time previous to the accident -- making the rail slippery and preventing the motorman or engineer from stopping the car or train soon enough to avoid collision or other accident. Or else that the streets were icy, and the plaintiff fell on the ice in the street after alighting from the car.

Most of the claims by shippers against railroads for goods damaged by rain or cold are settled on the basis of weather records and without recourse to courts.

A prominent lawyer recently stated that during the past 20 years, he had repeatedly used the evidence of the weather records and that they had been important factors in winning at least 50 cases.

Weather has been an important factor in many trials but is equally important in nearly all life's activities. There is hardly a single act in the drama of life in which weather doesn't play a leading part.

ANNOUNCEMENT: This is the sixth of a series of chats with the Weather Man, a U. S. Department of Agriculture feature. If you are enjoying and profiting by these programs drop us a line which we shall gladly forward on to the U. S. Weather Bureau. If you have had any interesting experiences to relate, please mention them and also ask any practical question on the subject of the weather that occurs to you.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

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PROGRAM Chats by the Weather Man RELEASE Wed. Nov. 17

ANNOUNCEMENT: Through the courtesy of the U. S. Department of Agriculture this station brings to its audience each Wednesday at this period a "Chat With the Weather Man." This talk is the sixth of a series on that ever interesting subject -- weather!

* * *

If you want to know how popular the Weather Man is, just listen to some of the questions folks ask him. Such questions are all in the days' work for the Weather Man. The majority, however, pertain mainly to the business interests of the community. Nevertheless, weather men are often asked to fix a date for a wedding, far in advance. At Atlanta the weather man usually recommends October 12, because it so happened that it didn't rain there on that day for 25 years.

One busy day the office 'phone kept up a barrage of short, impatient rings.

"Shall I wear my best dress down town today?" a young girl wanted to know.

"Shall I need an umbrella?" was the anxious inquiry of another.

"Will it be safe to take the baby out for an airing, this afternoon?" --

"Will my clothes dry nicely tomorrow?" --

As a weather man, I am personally grateful to the public for its trust and patronage. While some folks do expect us to give them more than is humanly possible, the majority of the questions are timely and sensible, and based precisely on the work we are doing and the service we aim to give the public.

Answering questions is by no means our whole job. It is merely a detail of the day's work, just as answering the telephone is a detail of any business man's job.

The daily forecast and special warnings service of the Forecast Division of the Weather Bureau is the most widely known of all the Bureau's varied and vivid activities. These daily forecasts are widely distributed through many channels, including the press, numerous telephone companies, a hundred or more broadcasting stations, and by the Bureau's own system of weather maps, bulletins, forecast cards, whistle signals, and flag displays.

I haven't told you much about the exact ways in which weather forecasts are used in my last six chats. I want to take the remainder of the period this evening to tell you just that. You may have to follow this rather closely.

To attempt then, a brief and somewhat graphic description of the uses to which these advices are put, it may be said that the forecasts and special warnings of the Weather Bureau --

"Guide the shipping and pleasure craft of our lakes and coasts, -- and, by

wireless, warn the mariner at sea of destructive storms.

Cause fruit growers to heat the apple orchards of Washington and Oregon, -- the peach orchards of Colorado and Utah, -- the orange groves of California and Florida: -- to flood the cranberry marshes of Oregon, Wisconsin, and Massachusetts. The warnings lead gardeners to protect the truck fields that supply our larger cities, -- when danger of damage by frost impends.

These forecasts and warnings tell growers the proper time to "harvest our tobacco and sugar crops and our grape vineyards in advance of freezing temperature. They tell the orchardists when to spray our apple orchards for the prevention of scab and blotch. They protect our National forests by putting the ranger on his guard against the dangerous 'fire winds' of the western slopes.

They govern the transportation of perishable fruits, vegetables, eggs, inks, and other liquids safely to market, and unload them in safe temperatures, -- they delay the loading of livestock, or hasten the service of stock trains, when severe weather conditions are threatened.

These weather forecasts have power. They bring about the closing of greenhouses, --increase activities in community heating plants, tell men when to protect fire plugs, -- stop or resume concrete work, -- and when to salt switches and rail intersections in advance of cold waves.

Up in the Northwest, the warnings herald the coming of below zero weather when the flour mills are opened in order to freeze the Mediterranean moth to death.

Down in sunny California, the warnings govern the drying of the raisin crop in rainless periods. They announce fair weather for the opportune cutting, curing and baling of alfalfa in all states where this wonderful hay is grown. The warnings tell farmers the time to gather the crop of broom corn in times of dry weather, thus affording a quality that brings the highest price to the grower.

They govern operations in the ice harvest of our central and northern lakes, -- assist in collecting and boiling the sap in the maple sugar sections of Vermont, -- and have been known to decide the size of the fisherman's net for the next day's effort.

They determine the route of the physician's patient to a distant point of comfort,-cause dentists to reserve dark days for his plate work and bright ones for his appointments, -- put the teacher on guard against days when students behave in mischievous ways,-and, in connection with judicious advertising, serve to increase the size of the shrewd minister's congregations.

Weather warnings are watched to determine the best time to shear the sheep on the ranges of our Western states, -- and they warn stock raisers when to hurry the stock on the great ranges to shelter before the blizzard, the 'norther' or the heavy snowstorm strikes. They daily guide millions of automobiles over the roads of the country, whether on business or pleasure bent.

All these activities are largely governed by the advices sent out by the Weather Bureau. But that isn't the whole catalog of Weather Bureau service by any means. These weather advices have so entered into our lives, our businesses, and our recreations that they have become a mere matter of course. We use the weather

services and depend on their accuracy with about as much thought as we give to the supply and quality of the air we breathe. New applications are being found almost every day for the forecasts and special warnings.

Weather, like dreams, extends far beyond the upper limits of the clouds. For many years, observations were confined mainly to the very few feet above the surface. Now meteorologists are aloft, farther and farther into the blue, but this is another story. And this concludes our weather chat. The series will be continued at this period next week. Send your comments and questions to this station for reference to the U. S. Department of Agriculture, under whose auspices this program is given.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

U. S. Department of Agriculture

PROGRAM Chats by the Weather Man RELEASE Wed. Nov. 24.

ANNOUNCEMENT: The Weatherman is with us again this Wednesday. His story, one of interest to all of us, follows.

* * * * * * *

It was "quitting time" one cold evening out in Sioux City, Iowa, -- back in the old days when "jitney" busses were in operation on the streets of that city.

The weather man was riding home from work after a strenuous day at the office. A cold wave was in prospect, and the weather office had issued warnings that same morning. The city was preparing to "hole in". Shippers were advised to protect their perishable merchandise against temperatures of 10 degrees below zero which were predicted for the next day. Weather office had flashed the warning by radio, telegraph, telephone, printed bulletins and in the papers. The white and black cold wave flag flew from a staff in Sioux City.

The driver of the "jitney" didn't know he was taking the weather man home.

"Well, I reckon we're in for a cold spell", he remarked to his passenger.

"That so"? asked the weather man. "How do you know"?

"Weather man's got the cold wave flag out", stated the driver of the buss.

Then the Sioux City weather man thought he'd get some inside information on weather men's ways. So he asked, "Wonder how those weather chaps go about to find out when to fly the cold wave flag?"

The driver was surprised. "Why haven't you heard"? he inquired. "You know that old man with the long whiskers that sells gas up on 28th Street? Well, that old fellow is a real weather prophet. He goes by the moon. The weather man goes up there about twice a week and talks to him about the weather. The old fellow keeps him posted"!

Many folks can't seem to understand that the Weather Bureau operates on scientific principles. They seem to think that we weather men watch the moon and the goosebones for signs --then make our predictions.

I don't have to consult the old fellow with the long whiskers to tell you folks that winter's just around the corner for most of us. So, haul in the wood and batten the doors. Soon we'll hear the song of the rolling wagon wheels as they creak over the frozen snow on zero mornings. Soon the telegraph wires will hum in the frost. The lone pine tree will chant its dirges to the wind, and the lakes will boom far off. All through the long nights, the wind will whistle and howl about the chimney pots, -- and trees will burst with cracking shots, deep in the woods. You'll hear the sleet tick -- tick on the window pane and be glad you're safe and warm inside, sitting by the fireplace. Listen to the soft PTH, PTH of the burning woods! The old folks say it's a sign of snow. "The fire is treading snow", they whisper softly.

I hope this chat will find you sitting around the fireplace tonight, because I have a cold subject to talk about.

Yet, -- do you know -- while the cold wave flags may be snapping in the wind in many American communities tonight, there are places in this wide land where winter is almost unknown. Frost follows a queer and winding path. Although there is no spot on the mainland of the U. S. that has never felt the bite of frost, there are many places where zero weather is unknown. I want to tell you something about Jack Frost tonight, -- that queer, frozen-nosed chap who catches us unawares-and sometimes ruins our crops.

Frost doesn't have to catch you unawares, -- if you'll take advantage of the Weather Bureau's reports. At present, the Bureau is making a special study of frost and how frost damage to crops and products may be minimized, -- or entirely avoided.

We weather men classify frosts into three groups: light, heavy, and killing. Light frosts do little or no damage, and heavy frosts damage only more tender vegetation. Killing frosts kill the staple products of a community and cause quite general destruction of crops. Even where there isn't enough moisture to produce the familiar white frost crystals, it may still be cold enough to kill crops or ruin products in store houses and on freight cars. This is known as a black frost.

When nights grow long and our days get short, -- when the sun is low in the southern sky, -- then we lose more heat by radiation during the long, cool nights than the sun gives us during the short days. As a result, the air temperature, -- especially near the ground,--is low. If the nights are calm, it gets still colder because there's no wind to stir the air up. Knowing this, some orchardists have tried great power-driven fans to stir up the air over their orchards. These fans are called "wind jammers". But they have not proven successful.

When the temperature falls to freezing, we have frost. Then the fruit grower will have to take the chance of a frozen crop, -- or get out his orchard heaters. Truck gardeners will have nightmares of the demon, Frost, riding down on frozen white wings to freeze the crops that bring his bread. Then, housewives rush out to cover the flowers with paper, or cloth-- anything to prevent freezing. Coverings of metal materials should not be used for this purpose. As metal radiates heat too rapidly and may be worse than no covering atall.

Farmers are interested in the average growing season for their particular territory. The average growing season is represented by the number of days between the average date of the last killing frost in the spring, and the average date of the first killing frost in the fall. This growing season increases from about 100 days in places along the northern borders of the country, to about 240 days or more in the extreme south, and along much of the California and south Atlantic coasts.

Knowing this, a farmer will choose those crops that will grow and mature and produce a crop in his territory during the frostless period. For example, if he has an average growing season of 120 days, he will select crops that will grow and mature in something less than 120 days time. The farmers must always allow for the chance of a killing frost coming later than the average in the spring, and earlier than the average in the autumn, but from Weather Bureau records he can tell just what the chances are that frost will cease by a certain date in spring or occur again in the fall. That is one reason why farming requires a high degree of good judgment and sound common sense, and why the farmer or the gardener should know the climate of his locality.

From a study of the growing seasons, we find that fewer than 90 days are available for profitable farming in some of the extreme northern borders of the east and central regions. This figure increases to 210 days in some of the extreme southern sections of the country.

Now, here's the nub of it all: -- Find out from your Weather Bureau what the profitable growing season for your own territory is. Your weather man will know or he will find out for you. Then determine what crops are best fitted to your section. Find out what crops are most profitable in your territory. Make use of the weather reports -- especially the storm and frost warnings. There are many stories I could tell you of savings made by farmers who were wise enough to listen to weather warnings. Here's one to say good night with:

The weather man out in Landor, Wyoming, tells of a stockman who called him up on the 'phone one day. It was late in the fall. Just about the time when the cattle are brought in off the summer ranges. The stockman asked if it would be advisable to move his stock in to the home ranch at once. The cold wave flag was being displayed at the time. The weather man urged the rancher to bring his cows in immediately, by all means, as a heavy snow fall was predicted with a .

cold wave to follow in from 24 to 36 hours. So the stockman 'phoned post haste to his foreman, telling him to bring the stock in and to make speed doing it. He also asked the foreman to 'phone a neighbor and tell him what the weather man had advised. The forman complied. He got the cattle in safely, a few hours in advance of a heavy snowfall. The neighbor stockman paid no attention to the warning. He suffered a heavy loss and was delayed 3 weeks in moving his stock. He was compelled to feed throughout that period, involving an expense he easily could have saved, -- had he listened to advice.

All of which is another way of saying:to be forwarned is to be forearmed.

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ANNOUNCEMENT: You may hear the Weatherman's chat regularly at this period on Wednesdays. If you enjoy this feature tell us so in a letter and we will pass the word along to the U. S. Department of Agriculture which prepares it for you. Your personal experiences in using the weather forecasts will be especially welcome. Perhaps it may be used on these programs.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

PROGRAM..... CHATS WITH THE WEATHER MAN ..... RELEASE Wed. Dec. 1

ANNOUNCEMENT: The Weather Man, whose regular Wednesday evening chat comes to you from the to you from the U. S. Department of Agriculture, through this station, is in a reminiscent mood tonight. With December already here, -- and the old year turning grey, -- the Weather Man has chosen to talk about Freak Weather. Especially the Freak Weather of 1925-'26. So stand by.

* * * * *

"From my earliest recollections," confesses a Nebraska weather man, "most storms have fascinated me, producing a feeling of awe but not of fear. The roar of the blizzard, -- the growl of thunderstorms with their vivid stabs of lightning, -- the shrieking squall of high winds and the crash of trees that fall before them, -- the driving wind and rain of a moderate hurricane, all have thrilled me.

"But I had seen all these. A tornado, I had never seen. So I fancied that the opportunity to study a right good tornado, at close range, would furnish a really wonderful experience.

"Now I didn't particularly ask to have a tornado made up for my own special benefit. I hoped that one might occur sometime when I was around. I wanted to be a rooter from the sidelines, so to speak. I missed our big 'twister' of Easter,1913, and have regretted it ever since.

"On the evening of April 6, 1919, I had my chance.

"I remember I was returning from work that evening and had reached a point only a few hundred feet east of my house, when I heard that horrible grinding, metallic roar that heralds a tornado in full blast. Through the twilight, I could see a great, dirty-brown, gyrating column rushing straight at me from a few hundred yards to the southwest.

"Ah! Here at last was the opportunity for which I had waited so long! Now I was to have that really wonderful experience! A second look at the writhing thing, and all my desire to observe a tornado at close quarters vanished and retreat was in order. Though not in training for such a sprint, I smashed all records in that sprint for home. And yet it seemed I hardly moved in that mad dash for my house which I hoped to reach in time to get my household into the storm cellar. It seemed that the tornado was changing its direction in order to intercept me and destroy my

home. But, by the time I reached my destination, the wind had passed to the east. Its center passed over the starting place of my race for life. We escaped.

"Fortunately the path of this storm was narrow and through a sparsely-settled region, so no lives were lost, -- only a few people were injured, -- and the property damage amounted to only a few hundred thousand dollars.

"But had I not taken to my heels, I might have had a wonderful experience. A change of mind on tornadoes came with that second look I threw over my shoulder, and I have had no desire for close observation of 'twisters' ever since".

Tornadoes although they occur every year are only one form of weather. The past year or two has furnished examples of a dozen other types. In the next 6 or 7 minutes, I want to speak of a few of them.

When we mention circus freaks, it brings to our mind pictures of abnormal, queer beings. Like Jo-Jo, the dog-faced boy, -- the fat lady, -- or Whatisit, the fire-eater. Tornadoes, dog-days, Indian Summer, chinook winds, are oddities of weather. Average, or ordinary weather, makes little impression on us. Ordinary weather continues week after week and no one objects. But let a week of unseasonable weather prevail, and hundreds of peope register a powerful kick, and, --if they can't change the weather, -- they want to change the weather MAN, at least.

For over a year now, the weather has been decidedly abnormal in some parts of the United States. It has shown greater extremes, and many freaks. For instance, let's take northeastern New York State. January broke the record for low temperature, --- February for high temperature, -- March for highest wind velocity ever reported for this section, -- April for the geatest snowfall,---and May for continued cold, with snow later in the month, and in larger amounts than ever before reported since records have been kept in Canton, New York.

Perhaps no more disagreeable day for late in May has ever been experienced in that region than that of May 23 when the temperature was just barely above the freezing point. Pellets of snow stung folks' faces. Icicles three inches long hung from apples trees and there was snow and slush to wade thru. It seemed more like March than May.

Freakish weather, during this period, was not confined to the United States. Reports from Siberia, Russia, parts of Asia, and even Arctic regions, showed that folks in those places were having queer weather too.

During this period an electric storm visited Kansas and charged the wire fences so that every barb of the fence gave off a tiny electric bulb of light. Even the horns of steers driven through the storm area, glowed with a tiny light on the tip of each horn. Stoves became so highly charged that gloves were necessary to handle the lifter, so as to prevent painful shocks. And yet no clouds were reported and no rain fell.

Record breaking drought threatened the water supply of many cities in the south and eastern sections of the country. The hunting season was closed by proclamation in the Adirondacks during the fall season.

Snawfall records of 100 years were exceeded during April and October in parts of Maine last year, in spite of the sayings of the oldest inhabitants that we never get as heavy snows now as they did when they were boys or girls.

The 18 months period was capped by the most destructive tornado ever reported anywhere. It occurred early in the spring in Missouri, Illinois and Indiana sections.

Please don't ask me to explain these conditions. No one can tell why, they occur. That does not mean that there has been a change in climate, or anything of that sort. Sometimes the weather holds to the uninteresting normal that usually goes to make pleasant and agreeable weather. It is apt however, to break out at some place, any time. Scareely a year occurs in which a weather record is not broken somewhere.

When we think a weather record has been broken we look into our records and find that the same thing has occurred many times within the period of written history.

As a rule we remember the unusual. We forget the things that are happening every day. That's one reason why we sometimes think the climate's changing. Everyone hears the older folks say that the "old fashioned winter" is a thing of the past, and "when I was a boy, we had sleighing from Thanksgiving to Easter".

But some of the records of the last two years will provide much food for discussion in years to come.

Investigations of old records are constantly being made, and while there is more or less evidence of "cycles" in various weather elements, -- especially temperature and rainfall, -- these so-called "cycles" have not been accepted by many distinguished meteorologists.

These investigators, however, have shown conclusively that climatic

changes are so small that they are negligible, and that occasional "old-fashioned" winters as well as wet or dry summers may still be expected.

Last summer is a case in point. June was the wettest month on record. in parts of southern California. It was immediately followed by nearly the driest July on record in the Carolinas. What may be expected, therefor, in the way of weather is very uncertain. But the climate is another story, and you may depend on its stability. We prepare for winter by laying in an average supply of coal. But we aren't surprised if seasonal variation requires a ton or two more -- or perhaps leaves us with a surplus in the bins.

So the climate goes on, providing us an endless account from which we may draw funds of expectation and speculation. Veterans of many winters speak of hard ones back in the 'Seventies, -- and we wonder if they were any worse than the winter of 1917-'18. They refer with conviction to a dry spell in the 'Eighties, and we wonder if it was any worse than the summer of 1925.

For winters come and winters go, but man cannot remember when there has not been winter.

Good night.

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ANNOUNCEMENT: Some of our listeners undoubtedly have interesting stories to contribute to the weather mans weekly chats. Sit down and write in your own words any incident you believe will be of interest and send it to this station or direct to the U. S. Department of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

CHATS BY THE WEATHER MAN

Wed. Dec. 8. 1926

PROGRAM..... RELEASE.....

ANNOUNCEMENT: We are now introducing the Weather Man in his regular Wednesday evening chat, released by the U. S. Department of Agriculture through this Station. His subject is the "Importance of the Weather Bureau to Big Business!" And here's how:

Here's a true yarn that sounds like a romance:

It comes out of the Weather Office in Kansas City, Missouri. I have permission to tell it to you.

Kansas City just dedicated her inspiring Liberty Memorial which cost approximately $1,750,000.00. President Coolidge traveled in a fast train from Washington to Kansas City to take a prominent part in the dedication ceremony. Queen Marie of Roumania was there. So were scores of other famous people. Somewhere in the background was the Weather Man, who helped to make this splendid Memorial a reality.

Before I tell you how the Kansas City Weather Office helped to erect this monument to the heroism of men, I'd like to read a letter from Mr. E. B. Murray, Consulting Engineer on the Memorial job, to Weather Man Connor of Kansas City. The letter is signed by Engineer Murray. It reads:

"Dear Sir: ---

"We wish to take this opportunity of expressing to you our satisfaction of the service received from your bureau, regarding special reports concerning prospective climatic conditions which reports we have been receiving from you for the past three years.

"In the construction of the Liberty Memorial of this city ----we used your predictions to considerable advantage.

"The writer had active supervision over the construction work of this structure and it was very necessary for us to know what weather conditions were expected to be, before we started pouring concrete, especially during the winter months. For, as you know, once a concrete pour is started, it has to be carried to the point where it is entirely completed. By gauging our pours on your predictions, we are glad to say that we did not have any concrete work freeze or any work damaged so that it was necessary to replace the same.

"In conlusion, allow us to say that the courtesy and service which we

have always received from you personally and from your office, has been very much appreciated".

Yours truly,
E. B. Murray,
Consulting Engineer.

That letter shouts for itself.

Here's Weather Man Connor's own story of the building of the Kansas City Liberty Memorial:

"The construction of the Liberty Memorial in this city put this weather office to an unusual test", begins Mr. Connor. "The job required more than a year for its completion.

"The excavations had been made. The time was the beginning of winter. Supervising Engineer, E. B. Murray, had stated in public interviews that work would begin when notified by the Weather Bureau that it would be safe to pour concrete.

"A concrete monolith of large size, and about 4 feet thick, was to be the foundation. The machinery was set, and a number of chutes were swung from derricks so arranged as to reach all parts of the structure. These were for the soft cement.

"The idea was to pour concrete for 3 days and 3 nights, without a stop, until the pouring job was done. It was necessary to do this at a time when there would be no freezing weather.

"Owing to bad weather conditions, the concrete crew was held in idleness, mostly, for about 10 or 12 days, waiting for a promise that no freezing weather would come for 3 days and 3 nights. This weather office was in daily communication with Mr. Murray, the engineer.

"One morning, Engineer Murray was given the glad word to get everything ready to begin pouring early the next morning. We said we could give him reasonable assurance that there would be no freezing weather for at least 3 days and 3 nights".

That meant action. Mr. Connor continues, "the news was received with enthusiasm. Weather conditions turned out to be ideal. The pouring job was successfully completed. But that was only the beginning. The superstructure, embracing the monumental shaft, 217-1/2 feet high, was yet to be built.

"There were many interruptions during the winter But, without boasting, this office mursed the job to completion with gratifying success".

Engineer Murray's letter proves that.

A few years ago, the New York Produce Exchange said that weather forecasts issued by the Weather Bureau afforded protection amounting to not less than $25,000,000.00 in the vicinity of New York City alone. The saving of produce, due to advance word on weather conditions from the Weather Bureau, must have amounted to many times that figure over the country as a whole.

It is said that not a single ship was lost on the Great Lakes during the year 1923, because the navigators were careful to note weather warnings and obey them.

Shipping's pretty heavy on the Great Lakes during the shipping season, as you probably know.

A year without loss of ships means a profitable season to the vessel owners, and a greater income for the United States.

Great railroads of the United States make a practice of guaging freight loads by the condition of the weather as reported by the Weather Bureau. For instance, do you know that a locomotive works much more efficiently in warm than in cold weather? It does, and that is one reason why the same locomotive can haul a larger load in summer than in winter. Traffic engineers and locomotive engineers load their trains, to a certain degree, according to the condition of the weather. Cold wave warnings make it necessary to load the trains more lightly.

Another thing. A foreknowledge of weather conditions sometimes determines the length of a freight train. It is dangerous business to couple on more and more cars when a blizzard, or very cold weather, is threathened.

Floods on the ZMississippi River are predicted with accuracy, days and weeks ahead. It takes a flood wave nearly a month to pass from Cairo, Illinois, to New Orleans, Louisiana. During this period of time, the advancing flood wave crest can be accurately guaged and its coming foretold as the prophets of old foretold famine and plagues.

My time is limited and I won't have a chance to mention dozens of other ways in which the Weather Bureau protects American industry. One more story,- and I'm through.

In a certain Mid-west town, a store was planning a large sale of merchandise. An enormous amount of newspaper advertising was planned to announce the sale. Those in charge knew that it was vital that fair weather should prevail during the sale. The store asked the opinion of the Weather Office in that city as to whether or not fair weather would bless the days chosen by the store for their huge sale. The Weather Man announced that, while rains

would come before the nearby date set for the sale, fair weather would be very likely on the date of the sale itself. The store went ahead, and announced the sale for a certain date, on the strength of the Weather Office prediction. It was a perfect day, and the sales receipts amounted to more than $170,000.00. The managers of the store wrote the Weather Office a personal letter of thanks and sent a long a "little token of appreciation", which was graciously declined.

Big Business wants to know what returns it gets on money spent. "True", you say, "the Weather Bureau is giving service. But what does it cost?"

Well, it costs not more than $2,500,000 a year to maintain the weather service in the scores of towns and cities throughout the United States. That means an annual cost to each person in the United States, of slightly more than 2 cents. One-fifth the price of a hot dog sandwich.

The return to the public is many times the cost of the weather service. It is doubtful whether general commerce, navigation, agriculture, and horticulture could operate without the service from the Weather Bureau, --- except at a considerable loss.

********** you

ANNOUNCEMENT: Now do you have any questions? Do/want to know how the Weather Bureau can help YOU in YOUR business? Or in YOUR pleasures? We shall be glad to answer any questions you may have on the Weather Bureau itself, or on any of its many services. Send the questions to this Station, or direct to the Radio Service of the United States Department of Agriculture.

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UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM Chats by the Weather Man. RELEASE Wed. Dec.15.

ANNOUNCEMENT: Do you believe in signs? Do you think it means a long, cold winter when the squirrels lay in a heavy store of nuts? And does it spell an early snowfall to you when the geese fly South earlier than usual? Doubtless you're among the millions of folks who DO believe in signs. But the Weather Man says some signs don't mean much. And in his Chat this evening, he's going to tell you why. So hitch your chairs up 'round the fire and listen.

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The seasoned skipper of a trim coasting schooner -- which plied along the North Atlantic coast -- believed in signs. And although he depended greatly on the Weather Bureau for information, he often compared the official weather forecasts with predictions of his own, based on signs he'd used for years. One day he confessed to a weather man how he knew when an "Easterly" was coming.

"I always know when an 'Easterly' is coming because the loons along the coast line holler louder than usual", he said.

He said another good sign of an east wind was when the sun burnt the back of his neck.

One day, the passenger steamer, "Bay State", was lying at the wharf in Portland, Maine, while the Captain waited for news regarding a bad storm which was reported along the North Atlantic coast. As the "Bay State" rocked peacefully, the impatient passenger confessed to one another that if the Captain had the courage of his bold father, he'd start out and get them to their destination without further delay. As the passengers thus bitterly gossiped, the Captain sat locked in his cabin -- declining to talk to any more angry passengers.

The passengers grew more and more impatient. The Captain more and more determined to stay snugly in harbor until it was safe to sail. The Weather Bureau sent in warnings that a storm of great intensity was howling and whirling off Cape Cod, moving northeast. The Captain said he would not sail under the circumstances.

All night long the storm raged. In the morning news came to the "Bay State" that the steamship, "Portland", was wrecked by the storm. Everyone on board was lost. The "Portland" ran alternate trips with the"Bay State."

Then came the impatient passengers to see the Captain whose trust in scientific signs had saved their lives. Lining up on the deck, they praised the skipper for his good judgment. Then they complimented the Weather Bureau on its accurate, everyday services to those who sail the sea.

For there are signs and signs, you see. One skipper trusts to a burnt neck to advise him of the coming of an "Easterly". Another lies at anchor -- while his passengers fume and scold -- because the Weather Bureau advises him to sit tight until it's safe to lift anchor and merrily steam away.

Scientific weather forecasting is only about 75 years old, you know. While Benjamin Franklin knew some of the fundamental principles on which modern forecasting is based, folks in Franklin's day depended mostly on a vast quantity of weather lore that has no more scientific backing than the "Charleston".

One of the most popular weather fallacies is that the moon has a great influence on the weather. Folks who take stock in the moon theory, often forget that the moon sheds its beams impartially on all the rest of mother earth, as well as on their own particular community. So, if fair weather comes with the changing of the moon, there must be fair weather in all the vast territory lighted by the changing moon. Well, it's clear that it can't be fair weather everywhere at once. It's very likely that the moon has influenced the prevailing systems of courtship more than it has the precipitation that falls on the lovers' heads.

Another popular fallacy -- a more recent one, by the way -- is that the cutting down of the forests has reduced the rainfall. Our weather men in different sections of the West report that the belief is very popular in these areas.

Well, most folks know that the main source -- and about the only material source -- of moisture on the earth is the sea. This moisture is carried inland only by the winds. Mountains that lift themselves in the path of these moisture-laden winds, have well-watered slopes on their seaward side. But the valleys on the leeward side are comparatively dry.

Now, the force and direction of the winds is regulated, not by the forests, but by the distribution of air pressure over great areas -- often a thousand miles away. These areas may be thousands of miles in diameter. Since this is the case, the forces that produce rainfall may have their start a thousand miles from the place where the rain actually occurs.

It's true that wide, sweeping forests once covered parts of Arizona and New Mexico. The thousands of petrified tree trunks there prove that. Well, these sections are now almost rainless. But they are rainless not because man

cut down these forests. The forests were dead half a million years before man came to those parts. The forests died because the moisture failed. Why the moisture failed, I don't know.

Many people believe:

That a long, cold winter is heralded when the squirrels lay up a heavy store of nuts;

That the season will be a wet one when the musk rat builds his house at a higher elevation than usual;

That it's a sign of an early winter when the wild geese fly honking Southward, earlier in the season than usual;

An that thick corn husks indicate a cold winter.

In other words, many people give the corn plant greater power to predict the weather than they, themselves, possess. I wouldn't like it to be thought that a musk rat is wiser than I, would you?

Investigations into these signs have shown that they have no foundation in fact. The squirrels lay up a bountiful supply of nuts when there are lots of nuts to be had. The musk rat determines the elevation of his mound by the height of the water at the time he begins to build his mound. If the water's high, the musk rat builds his mound high. An early storm may send the wild geese flying steadly to the South -- but it might clear up after they go! Corn husks are thick or thin according to the weather that prevailed while the husks were growing. It's pretty well established that the weather for 1927 can't be foretold by the state of the weather in 1926.

It's said that the word got about in a certain section that all the signs pointed to a hard, hard winter. The corn husks were thick. The geese had flown South. And so on. So the hardware dealers laid in a heavy stock of blow torches. They expected to have a big business in thawing out pipes. Well, the winter came. And it was the mildest in 36 years. That probably shook their faith in long range sign reading.

Of course, some of the well worn weather sayings have a lot of truth in them. For instance, this one: "Rainbow in the morning, sailor take warning. Rainbow at night, sailor's delight", has probably set a lot of sails in the past and sent countless ships a sailing. It can be proved that there's considerable truth in this saying.

And here's another that the sailors know: "Mackerel sky and mare's tails make lofty ships carry low sails". That's how it goes. Now "mackerel sky and

mare's tails" mean that cirro-cumulus clouds are present in the sky. And these clouds usually mean rain and high wind. Every sailor knows enough to furl some, or all, of the sails when a high wind's threatened.

But there's no reason to suppose that if "It rains on St. Swithin's Day, it will rain for 40 days", or that "the moon and the weather change together". I used to believe that when I was a small boy. But I was often disappointed when the signs failed to come true. Or glad that they didn't, as the case may be.

And I'd like to say that there's a lot of truth in Bacon's famous saying, that "every wind has it's weather". Generally, in this latitude, a wind from the East means that a storm is on the way. A wind from the West may mean that a storm's past and gone.

The Weather Bureau is very anxious to extend its forecasts to a month or a season in advance. But it will not do so until there's sound, scientific basis for such a system of forecasting. The Weather Bureau has no use for popular weather fallacies and has no intention of basing its forecasts on goose-bone and ground-hog weather signs.

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ANNOUNCEMENT: This concludes the Weather Man's regular weekly Chat, released by the U. S. Department of Agriculture through this Station. Next Wednesday evening, he will continue the series of talks on the oldest thing in the world. If you have any questions you want taken up in these talks --- or any pet signs you'd like to have considered -- send them in.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

Reserve

PROGRAM..... RELEASE.....

Chats by the Weather Man. Wed.Dec.22.

ANNOUNCEMENT: Speaking of Christmas presents reminds me of the services of the U.S.Weather Bureau. Of course the forecasts, and other services, aren't exactly free. They cost each person in the United States the price of a 2-cent stamp a year. Here's a year-round Santa Claus that many folks call in every day. In his chat tonight, the Weather Man is going to tell you how many American communities use these day-by-day Weather Bureau services. Mr. Weather Man...

---oOo---

A weather man employed in the weather office of a Florida city a few years ago, tells this amusing yarn. ---

"In the old days our weather office was located on the same floor with the U.S. Court. It was a busy morning we were having. The hall adjoining our office was crowded with witnesses and jurors called in on a case.

"My chief and I were working on the weather map -- translating the code reports as they came in. The crowd was all eyes and ears.

"Pretty soon I came to a misspelled word in the Kansas City report. I had had enough experience to know that it was not a good code word, but I didn't know exactly what the word might mean, either. So I turned to the chief and asked, 'What will we do with Kansas City?' In other words, I wanted to know what the word meant -- what was Kansas City reporting to us in its code telegram? The chief answered, 'Make it rain'.

"That was the signal for the boys out in the hall to perk up their ears. One of them turned to a companion and whispered, with a lot of respect in his voice, 'They're going to make it rain in Kansas City today'".

I suppose they actually thought we could.

Some folks somehow still believe that we can make it rain. They seem to think that our forecasts are built up in our offices. Of course, the predictions are based on hundreds of accurate observations made right out-of-doors all over the United States.

Some people seem to think we can pick a rainy day for Kansas City out of a plug hat -- just as a magician takes out a rabbit.

But the men who are making daily use of Weather Bureau observations know

what the observations mean, how they're made, and how to use them. For example: ---

A canning company, in order to avoid having a stock of cans on hand during the tomato canning season, consults the Weather Bureau as to the weather chances for the next few days during the canning season. If weather favorable for ripening tomatoes is expected, the company puts in an order for more cans. But if low temperature threatens freezing of the tomato crop, no more cans are ordered.

That's what might be called vision in business, it seems to me.

In rating a western city for fire insurance, the following information was secured from the Weather Bureau: Number of days a year with wind velocity of 25 miles an hour or more -- average number of months a year with snowfall of more than 10 inches -- and the average number of months a year having ten days or more with a maximum temperature of 32 degrees or lower. Then the insurance company had something to work on.

Even though it usually seems to rain on days set for picnics, it's often possible to avoid this by getting weather information a day or two in advance and then choosing a day billed as "fair". If you don't give the weather much advance notice, it will be mighty hard for it to brew up a brisk rain storm on such short notice.

When the weather office forecasts snow, officials out in a large western city get ready to remove the snow from the streets before it comes. The power street flushers are filled with warm water from mountain springs which is dashed on the streets to melt the snow.

Many housewives set the family washday and picnic dates by weather office calculations.

Managers of out-door skating rinks in many American cities, use the weather forecasts as a guide in flooding their rinks.

Society women use the weather forecasts in planning afternoon teas, receptions, lawn parties, and other social entertainments.

Red Cross district managers receive warnings of coming storms, cold waves, floods, tornadoes, and other weather disturbances, which might result in disasters great enough to require relief by the Red Cross.

One day a hydroplane ran out of fuel and was forced to land on the waters of the Gulf of Mexico, eighteen miles from Burwood, Louisiana. Naval officers consulted the Weather Bureau and were told that northeast winds of 12 miles an hour on Sunday, and 12 to 24 miles an hour on Monday, would drive the plane toward the southwest. But, said the weather officials, swells from a hurricane in the eastern Gulf, would tend to carry the plane toward the west. The two forces would drive the aircraft toward the west-

south-west. Well, the plane was found Tuesday afternoon, in latitude 28 degrees 26 minutes, longitude 91 -- which is certainly west-southwest of where it landed and very close to where the Weather Bureau Official calculated it would be. Another illustration of the services of the Weather Bureau in saving lives and preventing loss of property.

A city engineer in a Wyoming city was faced with the job of installing sewer mains in that Far West community. Did he trust to luck? He did not. He went to the weather records to find out the maximum rainfall in the city over a period of years. Then he proposed mains sufficiently large to handle a rainfall of 2 inches coming in an hour.

A large brickyard in Georgia doesn't take any chances of wet bricks freezing. When the weather office predicts falling temperature, the brickyard men take proper precautions to protect the wet bricks. That's just plain good business.

Many city commissioners employ laborers on the city streets only in good weather -- due to limited finances. The men report for duty each morning. If bad weather prevails-- and if the forecast and weather map indicate that the whole day would be stormy, -- the commissioners lay the boys off for the day.

Now I could go on until time to hang the stockings up next Saturday night, telling you how the weather man comes to the American public in the white whiskers, red cap, and fur coat of Santa Claus, every day in the year. But time will not permit such a long story. I merely wanted to tell you that there are ways of making use of weather reports not ordinarily listed in the books.

Before I say good night, I want to wish you all a merry Christmas and a happy New Year from -- the Weather Man.

---oOo---

ANNOUNCEMENT: And with that last wish ringing in your ears, the Weather Man makes his bow and exit. He will be back next Wednesday evening with another talk direct from the Weather Bureau, U.S.Department of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

PROGRAM CHATS BY THE WEATHER MAN. RELEASE Wed. Dec. 29

ANNOUNCEMENT: If you read the weather forecasts in your daily paper regularly, you're familiar with such notices as: PARTLY CLOUDY AND COLDER TODAY, CLOUDIER WITH RAIN TOMORROW --- or, PARTLY CLOUDY WITH RISING BAROMETER TODAY; TOMORROW FAIR. Some folks think weather forecasting is one of the Black Arts, but the Weather Man says there's really nothing so mysterious about it. It's largely a matter of instruments, and in his Chat tonight, the Weather Man is going to tell you about WEATHER INSTRUMENTS and how they're used.

--oOoOoo--

The day's rush was over and I was sitting in the weather office totaling up my Christmas bills.

All at once there came a bold knock at the door.

Really, I was badly in need of something cheerful just then. I called COME IN.

The door swung open and in strode a big, bluff, chap wearing a tall, grey sombrero. He told me he was just off the Bar Diamond ranch--in town on a holiday spree. Said he was determined to see a real, live weather office before he went back to feeding stock. Said he guessed this weather office was about as good as they come and that he was ready to go up to the tower and look inside that "chicken coop" up there where he figured we kept "the man who makes the weather".

Well, I told him that "chicken coop" up there on the Federal building was a shelter for thermometers and weather instruments, -- not for weather birds. Told him if he wanted to see a live weather bird just to take a good squint at me.

He did -- and seemed disappointed. But he evidently had inherited a lot of determination from his rancher forefathers. He was not to be put off.

Well, we had a meteorograph in the office and I showed him that. I explained how it works. The meteorograph is a triple register and it's all but human. It makes records of the weather that HAS OCCURED — but not even a meteorograph can predict the sort of weather that IS GOING TO OCCUR.

After I finished the explanation, the visitor said he'd always wanted to know something about THIS INSTRUMENT THAT PREDICTS THE WEATHER. Said he'd heard there's such an instrument, but that he'd

never seen one before. So I had to go through my explanation again -- and tell him again that this meteorograph does not predict the weather for next week, but merely records what has happened. I told him that if he ever expected to see an instrument that would tell one what the weather's going to be sometime in the future, he'd certainly die a very disappointed man.

Well, then he fished a scrap of newspaper out of his pocket, handed it to me, and said: "How do you fellows make up these notices then"?

I read what it said on the paper. It was regular newspaper weather notice. It said, FAIR AND WARMER TODAY.

It looked like he wanted to get the whole story, so I decided to take him up on the tower where I could point some things out, and began:

"Benjamin Franklin discovered that storms move eastward across the country", I stated, as we climbed the stairs.

"I thought he discovered electricity"? said my visitor.

"Well, even if he did -- it's still possible that he also found that storms move eastward across the country", I said. Somehow or other I had a feeling that he was joking with me, so I decided to see the thing through. I went on to explain that vast swirls, or eddies in the atmosphere, hundreds of miles across, move from west to east usually. I told my friend that these areas are called AREAS OF LOW PRESSURE, or cyclones, or just plain STORMS.

"Now", I continued, "there are 200 weather stations, similar to this one, in all parts of the United States. These stations are all connected with telegraph lines. So, when these Areas of Low Pressure, or storms, move along -- generally at a speed of 25 to 40 miles an hour, the stations take measurements of them as they move. The storms are carefully mapped, and the information is sent on to other stations".

"But how do they measure storms?" my inquiring visitor asked.

"With such instruments as these", I told him. We were up in the weather office by now and the instruments were there before us. "Here's the instrument board", said I. "These are barometers. They measure and record the weight of the air. And these thermometers here measure the temperature and moisture content of the air. Here are some wind vanes and an-e-mo-me-ters to measure and indicate the direction of the wind speed. These ne-pho-scopes help us to study the kinds of clouds in the sky, as well as the direction they are moving. We have still other instruments, such as the meteorograph I showed you. We also have instruments to measure rain and snow fall.

"How do they work? he asked.

"Well, what good are these jiggers"? he asked me next.

"They tell us the conditions of the air", I said, "so accurately that we are able -- with all the rest of weather information we have -- to predict the weather for a few hours to 42 hours in advance. These predictions are correct 9 times out of 10".

I noticed that he was impressed.

"How's it done?"

"Every morning, early, the weather man makes his observations", I began. "It takes him from 15 to 20 minutes to read these instruments and the weather observers in all the 200 stations make the observations at precisely the same time each morning. When the observations are completed, the weather observers send them to the central office in Washington, D. C., and to all important cities, BY TELEGRAPH. All this information reaches all the stations at about the same time, and in about one hour after the observations are taken.

"Now, when the weather observers in the various stations get this information, they immediately get busy. They each have a blank map of the United States on which the weather stations are indicated by small circles. As the weather man receives the information, he records the conditions at each station with appropriate signs. Let's take a case. Say this is the Salt Lake City weather station. We get telegraph word that it's raining in Kansas City. In the circle around Kansas City we put the letter R. That means rain. If it's cloudy in Kansas City, we shade the Kansas City circle with a pencil. If it's partly cloudy, we shade half the circle. If it's clear, we leave the circle white. If it's snowing, we write the letter S in the circle. "Do you see?"

He said he did.

"The direction of the wind is indicated by an arrow pointing to the proper direction. Near each station are entered figures, recording the temperature, height of the barometer, the velocity of the wind and the rainfall for the PRECEDING 24 hours, at that place. After all the reports have been translated and entered on the weather map, lines are drawn with RED pencil through places having the same barometric pressure. These lines are called ISOBARS. Other lines, drawn with BLUE pencil, connect places having the same temperature. These are called ISOTHERMS. The complete chart is the weather map. Now do you see what we've done?"

"Yes", he said. "It's just like you could get up in a ballon so high you could see the whole United States, then looked down, and saw the weather for all parts".

"Exactly", I said. "But you'll notice we haven't done a thing but draw a picture of the weather in all parts of the United States THIS MORNING. We haven't forecast it yet, have we?"

"Well, I reckon not", said my visitor. "And that's just what I want to know. What good are these charts now you've made 'em?"

"Why, don't you see?" I asked. "These maps give us a picture of the weather for a given morning. With all the signs before us, we can generally predict the weather for that given day and part of the day following".

"How?" he asked.

"Well, we've already seen that weather usually travels from WEST to EAST. Now, every weather map for the U. S. almost invariably shows regions where the ATMOSPHERE PRESSURE is above or below the normal. The places where the pressure is below 30.00 inches are marked LOWS. Regions where the pressure is ABOVE 30.00 inches are marked HIGHS. LOW PRESSURE AREAS ARE GENERALLY STORM AREAS".

"Now I'm beginning to see it all", he said. "With all those measurements you make, you can tell where the sstorms are and which way they are moving. If a fellow knows how fast the storm is moving, which way it's moving, he can tell how soon it's going to hit him, eh?"

"Precisely", I said. "But you must remember that we don't fully understand all the signs yet. And then the weather's/highly changeable thing. Sometimesthe signsplays false. That accounts for that one error in ten predictions made by weather men".

"Well it's not so bad at that," said my friend as he turned away from the instrument board and headed toward the stairs. "If I could hit the market right 9 times out of 10 I'd be fixed up mighty fine about now".

And with that wise remark, we went below.

--ooOoo--

ANNOUNCEMENT: That concludes the Weather Man's last Chat during the year 1926. Next week he will continue his short talks on something everybody talks about but nobody does much about.